



~3529537.txt
SEQUENCE LISTING

> Stratagene

<120> Renilla Reniformis Green Fluorescent Protein and Mutants Thereof

<130> 25436/1162

<140> US 09/795,040

<141> 2001-02-26

<150> US 60/185,589

<151> 2000-02-28

<150> 60/210,561

<151> 2000-06-09

<160> 8

<170> PatentIn version 3.0

<210> 1

<211> 720

<212> DNA

<213> Renilla reniformis

<220>

<221> exon

<222> (1)..(720)

<223> open reading frame

<400> 1

~3529537.txt

atg	gtg	agt	aaa	caa	ata	ttg	aag	aac	act	gga	ttg	cag	gag	atc	atg	48
Met	Val	Ser	Lys	Gln	Ile	Leu	Lys	Asn	Thr	Gly	Leu	Gln	Glu	Ile	Met	
1				5					10					15		
tcg	ttt	aaa	gtg	aat	ctg	gaa	ggt	gta	gta	aac	aat	cat	gtg	ttc	aca	96
Ser	Phe	Lys	Val	Asn	Leu	Glu	Gly	Val	Val	Asn	Asn	His	Val	Phe	Thr	
			20					25					30			
atg	gaa	ggt	tgt	gga	aaa	gga	aat	att	tta	ttc	gga	aac	caa	ctg	gtt	144
Met	Glu	Gly	Cys	Gly	Lys	Gly	Asn	Ile	Leu	Phe	Gly	Asn	Gln	Leu	Val	
		35					40					45				
cag	att	cgt	gtc	aca	aaa	ggg	gtc	ccg	ctt	cca	ttt	gca	ttt	gat	att	192
Gln	Ile	Arg	Val	Thr	Lys	Gly	Val	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile	
	50					55					60					
ctc	tca	cca	gct	ttc	caa	tac	ggc	aac	cgt	aca	ttc	acg	aaa	tac	ccg	240
Leu	Ser	Pro	Ala	Phe	Gln	Tyr	Gly	Asn	Arg	Thr	Phe	Thr	Lys	Tyr	Pro	
					70				75						80	
gag	gat	ata	tca	gac	ttt	ttt	ata	caa	tca	ttt	cca	gcg	gga	ttt	gta	288
Glu	Asp	Ile	Ser	Asp	Phe	Phe	Ile	Gln	Ser	Phe	Pro	Ala	Gly	Phe	Val	
				85					90					95		
tac	gaa	aga	acg	ttg	cgt	tac	gaa	gat	ggt	gga	ctg	ggt	gaa	atc	cgt	336
Tyr	Glu	Arg	Thr	Leu	Arg	Tyr	Glu	Asp	Gly	Gly	Leu	Val	Glu	Ile	Arg	
			100					105					110			
tca	gat	ata	aat	tta	atc	gag	gag	atg	ttt	gtc	tac	aga	gtg	gaa	tat	384
Ser	Asp	Ile	Asn	Leu	Ile	Glu	Glu	Met	Phe	Val	Tyr	Arg	Val	Glu	Tyr	
		115					120					125				
aaa	ggt	agt	aac	ttc	ccg	aat	gat	ggt	cca	gtg	atg	aag	aag	aca	atc	432
Lys	Gly	Ser	Asn	Phe	Pro	Asn	Asp	Gly	Pro	Val	Met	Lys	Lys	Thr	Ile	
	130					135					140					
aca	gga	tta	caa	cct	tcg	ttc	gaa	ggt	gtg	tat	atg	aac	gat	ggc	gtc	480
Thr	Gly	Leu	Gln	Pro	Ser	Phe	Glu	Val	Val	Tyr	Met	Asn	Asp	Gly	Val	
	145				150					155					160	
ttg	ggt	ggc	caa	gtc	att	ctt	ggt	tat	aga	tta	aac	tct	ggc	aaa	ttt	528
Leu	Val	Gly	Gln	Val	Ile	Leu	Val	Tyr	Arg	Leu	Asn	Ser	Gly	Lys	Phe	
				165					170					175		
tat	tcg	tgt	cac	atg	aga	aca	ctg	atg	aaa	tca	aag	ggt	gta	gtg	aag	576
Tyr	Ser	Cys	His	Met	Arg	Thr	Leu	Met	Lys	Ser	Lys	Gly	Val	Val	Lys	
			180					185					190			
gat	ttt	ccc	gaa	tac	cat	ttc	att	caa	cat	cgt	tta	gag	aag	act	gat	624
Asp	Phe	Pro	Glu	Tyr	His	Phe	Ile	Gln	His	Arg	Leu	Glu	Lys	Thr	Asp	
		195					200					205				
gtg	gaa	gac	gga	ggt	ttt	gtt	gag	caa	cac	gag	acg	gcc	att	gct	caa	672
Val	Glu	Asp	Gly	Gly	Phe	Val	Glu	Gln	His	Glu	Thr	Ala	Ile	Ala	Gln	
	210					215					220					
ctg	aca	tcg	ctg	ggg	aaa	cca	ctt	gga	tcc	tta	cac	gaa	tgg	ggt	taa	720
Leu	Thr	Ser	Leu	Gly	Lys	Pro	Leu	Gly	Ser	Leu	His	Glu	Trp	Val		
					230					235						

<210> 2

<211> 239

<212> PRT

<213> Renilla reniformis

<400> 2

```

Met Val Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Met
1      5      10
Ser Phe Lys Val Asn Leu Glu Gly Val Val Asn Asn His Val Phe Thr
20     25     30
Met Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val
35     40     45
Gln Ile Arg Val Thr Lys Gly Val Pro Leu Pro Phe Ala Phe Asp Ile
50     55     60
Leu Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro
65     70     75     80
Glu Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val
85     90     95
Tyr Glu Arg Thr Leu Arg Tyr Glu Asp Gly Gly Leu Val Glu Ile Arg
100    105    110
Ser Asp Ile Asn Leu Ile Glu Glu Met Phe Val Tyr Arg Val Glu Tyr
115    120    125
Lys Gly Ser Asn Phe Pro Asn Asp Gly Pro Val Met Lys Lys Thr Ile
130    135    140
Thr Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val
145    150    155    160
Leu Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe
165    170    175
Tyr Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys
180    185    190
Asp Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Asp
195    200    205
Val Glu Asp Gly Gly Phe Val Glu Gln His Glu Thr Ala Ile Ala Gln
210    215    220
Leu Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
225    230    235

```

<210> 3

<211> 720

<212> DNA

<213> Artificial

<220>

<223> Humanized DNA

<220>

<221> exon

<222> (1)..(720)

<223> open reading frame

<400> 3

atg	gtg	agc	aag	cag	atc	ctg	aag	aac	acc	ggc	ctg	cag	gag	atc	atg	48
Met	Val	Ser	Lys	Gln	Ile	Leu	Lys	Asn	Thr	Gly	Leu	Gln	Glu	Ile	Met	
1				5					10					15		

agc	ttc	aag	gtg	aac	ctg	gag	ggc	gtg	gtg	aac	aac	cac	gtg	ttc	acc	96
Ser	Phe	Lys	Val	Asn	Leu	Glu	Gly	Val	Val	Asn	Asn	His	Val	Phe	Thr	
			20					25					30			

atg	gag	ggc	tgc	ggc	aag	ggc	aac	atc	ctg	ttc	ggc	aac	cag	ctg	gtg	144
Met	Glu	Gly	Cys	Gly	Lys	Gly	Asn	Ile	Leu	Phe	Gly	Asn	Gln	Leu	Val	
		35					40					45				

cag	atc	cgc	gtg	acc	aag	ggc	gcc	ccc	ctg	ccc	ttc	gcc	ttc	gac	atc	192
Gln	Ile	Arg	Val	Thr	Lys	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile	
	50					55					60					

ctg	agc	ccc	gcc	ttc	cag	tac	ggc	aac	cgc	acc	ttc	acc	aag	tac	ccc	240
Leu	Ser	Pro	Ala	Phe	Gln	Tyr	Gly	Asn	Arg	Thr	Phe	Thr	Lys	Tyr	Pro	
65					70				75						80	

gag	gac	atc	agc	gac	ttc	ttc	atc	cag	agc	ttc	ccc	gcc	ggc	ttc	gtg	288
Glu	Asp	Ile	Ser	Asp	Phe	Phe	Ile	Gln	Ser	Phe	Pro	Ala	Gly	Phe	Val	
				85					90					95		

tac	gag	cgc	acc	ctg	cgc	tac	gag	gac	ggc	ggc	ctg	gtg	gag	atc	cgc	336
Tyr	Glu	Arg	Thr	Leu	Arg	Tyr	Glu	Asp	Gly	Gly	Leu	Val	Glu	Ile	Arg	
			100					105					110			

agc	gac	atc	aac	ctg	atc	gag	gag	atg	ttc	gtg	tac	cgc	gtg	gag	tac	384
Ser	Asp	Ile	Asn	Leu	Ile	Glu	Glu	Met	Phe	Val	Tyr	Arg	Val	Glu	Tyr	
		115					120					125				

aag	ggc	cgc	aac	ttc	ccc	aac	gac	ggc	ccc	gtg	atg	aag	aag	acc	atc	432
Lys	Gly	Arg	Asn	Phe	Pro	Asn	Asp	Gly	Pro	Val	Met	Lys	Lys	Thr	Ile	
	130					135					140					

acc	ggc	ctg	cag	ccc	agc	ttc	gag	gtg	gtg	tac	atg	aac	gac	ggc	gtg	480
Thr	Gly	Leu	Gln	Pro	Ser	Phe	Glu	Val	Val	Tyr	Met	Asn	Asp	Gly	Val	
145					150					155					160	

ctg	gtg	ggc	cag	gtg	atc	ctg	gtg	tac	cgc	ctg	aac	agc	ggc	aag	ttc	528
Leu	Val	Gly	Gln	Val	Ile	Leu	Val	Tyr	Arg	Leu	Asn	Ser	Gly	Lys	Phe	
				165					170					175		

tac	agc	tgc	cac	atg	cgc	acc	ctg	atg	aag	agc	aag	ggc	gtg	gtg	aag	576
Tyr	Ser	Cys	His	Met	Arg	Thr	Leu	Met	Lys	Ser	Lys	Gly	Val	Val	Lys	

~3529537.txt

180					185					190						
gac	ttc	ccc	gag	tac	cac	ttc	atc	cag	cac	cgc	ctg	gag	aag	acc	tac	624
Asp	Phe	Pro	Glu	Tyr	His	Phe	Ile	Gln	His	Arg	Leu	Glu	Lys	Thr	Tyr	
		195					200					205				
gtg	gag	gac	ggc	ggc	ttc	gtg	gag	cag	cac	gag	acc	gcc	atc	gcc	cag	672
Val	Glu	Asp	Gly	Gly	Phe	Val	Glu	Gln	His	Glu	Thr	Ala	Ile	Ala	Gln	
	210					215					220					
ctg	acc	agc	ctg	ggc	aag	ccc	ctg	ggc	agc	ctg	cac	gag	tgg	gtg	taa	720
Leu	Thr	Ser	Leu	Gly	Lys	Pro	Leu	Gly	Ser	Leu	His	Glu	Trp	Val		
225					230					235						

<210> 4

<211> 239

<212> PRT

<213> Artificial

<220>

<223> Polypeptide coded by humanized DNA

<400> 4

Met	Val	Ser	Lys	Gln	Ile	Leu	Lys	Asn	Thr	Gly	Leu	Gln	Glu	Ile	Met
1				5					10					15	
Ser	Phe	Lys	Val	Asn	Leu	Glu	Gly	Val	Val	Asn	Asn	His	Val	Phe	Thr
			20					25					30		
Met	Glu	Gly	Cys	Gly	Lys	Gly	Asn	Ile	Leu	Phe	Gly	Asn	Gln	Leu	Val
		35					40					45			
Gln	Ile	Arg	Val	Thr	Lys	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile
	50					55					60				
Leu	Ser	Pro	Ala	Phe	Gln	Tyr	Gly	Asn	Arg	Thr	Phe	Thr	Lys	Tyr	Pro
65					70				75						80
Glu	Asp	Ile	Ser	Asp	Phe	Phe	Ile	Gln	Ser	Phe	Pro	Ala	Gly	Phe	Val
				85					90					95	
Tyr	Glu	Arg	Thr	Leu	Arg	Tyr	Glu	Asp	Gly	Gly	Leu	Val	Glu	Ile	Arg
			100					105					110		
Ser	Asp	Ile	Asn	Leu	Ile	Glu	Glu	Met	Phe	Val	Tyr	Arg	Val	Glu	Tyr
		115					120					125			
Lys	Gly	Arg	Asn	Phe	Pro	Asn	Asp	Gly	Pro	Val	Met	Lys	Lys	Thr	Ile
	130					135					140				
Thr	Gly	Leu	Gln	Pro	Ser	Phe	Glu	Val	Val	Tyr	Met	Asn	Asp	Gly	Val
145					150					155					160
Leu	Val	Gly	Gln	Val	Ile	Leu	Val	Tyr	Arg	Leu	Asn	Ser	Gly	Lys	Phe
				165					170					175	

~3529537.txt

Tyr Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys
180 185 190
Asp Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr
195 200 205
Val Glu Asp Gly Gly Phe Val Glu Gln His Glu Thr Ala Ile Ala Gln
210 215 220
Leu Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
225 230 235

<210> 5

<211> 44

<212> DNA

<213> Artificial

<220>

<223> Synthetic primer

<220>

<221> misc_feature

<222> (1)..(44)

<223> Synthetic primer

<400> 5

aattattaga attcaccatg gtgagtaaac aaatattgaa gaac

44

<210> 6

<211> 38

<212> DNA

<213> Artificial

<220>

<223> Synthetic primer

<220>

<221> misc_feature

<222> (1)..(38)

<223> Synthetic primer

<400> 6
ataatattct cgagttaaac ccattcgtgt aaggatcc

38

<210> 7

<211> 7

<212> DNA

<213> Artificial

<220>

<223> Consensus sequence

<220>

<221> misc_feature

<222> (1)..(7)

<223> Consensus sequence

<400> 7
accatgg

7

<210> 8

<211> 6

<212> PRT

<213> Renilla reniformis

<220>

<221> DOMAIN

<222> (1)..(6)

<223> Chromophoric center

<400> 8

Phe Gln Tyr Gly Asn Arg
1 5